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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2019-0124; Notice 2]

North America Subaru, Inc., Denial of Petition for Decision of Inconsequential Noncompliance

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Denial of petition.

SUMMARY: North America Subaru, Inc., (NASI) on behalf of Subaru Corporation and Subaru of America, Inc. (Subaru) has determined that certain model year (MY) 2016 - 2020 Subaru Impreza motor vehicles do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 108, *Lamps, Reflective Devices, and Associated Equipment*. Subaru filed a noncompliance report dated October 10, 2019. NASI, on behalf of Subaru, petitioned NHTSA on October 23, 2019, for a decision that the subject noncompliance is inconsequential as it relates to motor vehicle safety. This document announces and explains the denial of NASI's petition.

FOR FURTHER INFORMATION CONTACT: Leroy Angeles, Office of Vehicle Safety Compliance, the National Highway Traffic Safety Administration (NHTSA), (202) 366-5304, Leroy.Angeles@dot.gov.

SUPPLEMENTARY INFORMATION:

I. Overview:

NASI has determined that certain MY 2016 - 2020 Subaru Impreza motor vehicles do not fully comply with S8.1.11 and S10.15.6 of FMVSS No. 108, *Lamps, Reflective Devices, and Associated Equipment* (49 CFR 571.108). Subaru filed a noncompliance report dated October 10, 2019, pursuant to 49 CFR part 573, *Defect and Noncompliance Responsibility and Reports.* NASI petitioned NHTSA on October 23, 2019, for an exemption from the notification and

remedy requirements of 49 U.S.C. Chapter 301 on the basis that this noncompliance is inconsequential as it relates to motor vehicle safety, pursuant to 49 U.S.C. 30118(d) and 30120(h) and 49 CFR part 556, *Exemption for Inconsequential Defect or Noncompliance*.

Notice of receipt of NASI's petition was published with a 30-day public comment period, in the **Federal Register** (85 FR 39037, June 29, 2020). One comment was received. To view the petition and all supporting documents log onto the Federal Docket Management System (FDMS) website at https://www.regulations.gov/. Then follow the online search instructions to locate docket number "NHTSA-2019-0124."

II. Vehicles Involved:

Approximately 63,697 MY 2016 - 2020 Subaru Impreza 4 door and approximately 124,703 Subaru Impreza Station wagon vehicles, totaling 188,400 motor vehicles manufactured between September 23, 2016, and August 7, 2019, are potentially involved.

III. Noncompliance:

NASI explains that there are two separate noncompliances associated with the subject vehicles' front combination lamps. First, the front combination lamps contain lower beam headlamps that do not meet the requirements of paragraph S10.15.6, and second, the front combination lamps contain reflex reflectors that do not meet the requirements of paragraph S8.1.11 of FMVSS No. 108. Specifically, when tested, the lower beam in two of four front combination lamps (samples: LH1 and LH4) and the reflex reflector in four of four front combination lamps (samples LH1, LH2, LH3 and LH4) failed to comply at certain test points.

IV. Rule Requirements:

S8.1.11 and S10.15.6 of FMVSS No. 108 include the requirements relevant to this petition. 49 CFR 571.108, S8.1.11 requires each reflex reflector be designed to conform to the photometry requirements of Table XVI-a when tested according to the procedure of S14.2.3. 49 CFR 571.08, S10.15.6 requires each replaceable bulb headlamp be designed to conform to the

photometry requirements of Table XIX for lower beam as specified in Table II-d for the specific headlamp unit and aiming method, when tested according to the procedure of S14.2.5 using any replaceable light source designated for use in the system under test.

V. Summary of NASI's Petition:

The following views and arguments presented in this section, "V. Summary of NASI's Petition," are the views and arguments provided by NASI and do not reflect the views of the Agency.

NASI described the subject noncompliance and contended that the noncompliance is inconsequential as it relates to motor vehicle safety.

1. NASI submitted that the nonconformance relating to side reflex reflector photometry is inconsequential as it relates to motor vehicle safety for the following reasons:
    a. Real-world testing conducted by NASI showed that noncompliant and compliant reflex reflectors are equally detectable in real-world conditions. NASI included an overview of cognitive performance testing of the compliant and noncompliant reflex reflectors with its petition which can be found in full on the FDMS website.[1] The cognitive performance test set-up simulated a condition typical of a vehicle approaching an unlit, perpendicular vehicle stalled in the driving lane. This test condition simulates a real-world condition where side reflex reflectors would support improved visibility of that vehicle. The test results show that, with respect to light reflectance and their ability to be detected, there is no noticeable difference observable between the fully compliant reflex reflector and the reflex reflector that marginally fails to comply at select test points.
    b. At a majority of the test points where the tested reflex reflectors were found to have measured intensities below the required minimum values, the measured values were generally only slightly less than the required minimum. For two of the four lamp

[1] https://www.regulations.gov/document/NHTSA-2019-0124-0001.

assemblies tested, there was one point (point HV) where measured values slightly exceeded the 25% threshold cited by NHTSA and others in the past as being the threshold at which the difference between two lamp intensities of less than 25% cannot be detected reliably by most drivers.[2] The two measured values were below the required minimums by 26.9% (sample LH1) and 27.7% (sample LH4). NASI noted that, on average, for the four samples tested by Calcoast, the HV test point was only 24.8% below the required minimum. We also note, as mentioned above, that the cognitive performance testing conducted by NASI found there to be no noticeable differences in detectability for the compliant and noncompliant reflex reflectors in question.

c. For a dynamic situation, light reflecting at a particular test point will be observed for only a short period of time. Compared to a light source that is constantly illuminated, the intensity originating from a reflex reflector is more fleeting to an observer. Reflex reflector intensity varies significantly depending on the angle of the driver's eyes to the reflector's central axis. Larger angles mean less light will be seen from the reflex reflector. Smaller angles mean more light will be seen from the reflex reflector. As a result, a nonconformity at a given test point for a reflex reflector will generally have a minimal impact on detectability. Thus, minor nonconformances at any one test point should be inconsequential with respect to safety risk.

d. NASI contended that it has been recognized by NHTSA in the past that it is inherently difficult to manufacture all lamps[3] to comply with all test points and that random failures do occur. FMVSS No. 108 requires lighting equipment be

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[2] *See* DOT report, *Driver Perception of Just Noticeable Differences of Automotive Signal Lamp Intensities,* DOT HS 808 209, September 1994. https://ntrl.ntis.gov/NTRL/dashboard/searchResults/titleDetail/PB95206306.xhtml

[3] Reflex reflectors are considered reflective devices and not lamps. FMVSS No. 108 defines reflex reflectors as "devices used on vehicles to give an indication to approaching drivers using reflected light from the lamps of the approaching vehicle."

designed to conform to relevant requirements as opposed to simply comply with relevant requirements. NASI stated that according to NHTSA,[4] occasional random noncompliances are to be expected in this very complicated design and manufacturing process and it is for this reason that the "designed to comply"[5] provision is contained in the lighting standard. *See* commentary from the NPRM[6] in which NHTSA proposed to amend FMVSS No. 108 to permit the certification of adaptive driving beam headlighting systems. In that notice, the Agency noted that, historically, there has never been an absolute requirement that every motor vehicle lighting device meets every single photometric test point to comply with FMVSS No. 108.

e. NASI stated that NHTSA has previously granted Subaru[7] and General Motors[8] petitions for inconsequentiality involving side reflex reflectors which were determined to be nonconforming at select test points by varying degrees.

f. NASI claimed that it is not aware of any field or customer complaints related to the performance of the side reflex reflectors contained the subject front combination lamps, nor has it been made aware of any accidents or injuries that have occurred relating to the performance of these lamp assemblies.

2. NASI submitted that the nonconforming condition relating to lower beam photometry is inconsequential as it relates to motor vehicle safety for the following reasons:

   a. In compliance testing conducted by CALCOAST-ITL on behalf of NHTSA,[9] two of

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[4] *See Nissan Motor Corporation, U.S.A.; Denial of Application for Decision of Inconsequential Noncompliance;* 62 FR 63416, November 28, 1997.

[5] Specific to reflex reflectors and the lower beam, the regulatory text uses the phrase "designed to conform." This phrase will be used throughout the analysis section for clarity.

[6] *See Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment;* 83 FR 51766, October 12, 2018.

[7] *See Subaru of America; Grant of Petition for Determination of Inconsequential Noncompliance;* 56 FR 59971, November 26, 1991.

[8] *See General Motors Corporation; Grant of Petition for Determination of Inconsequential Noncompliance;* 57 FR 45866, October 5, 1992.

[9] *See* NHTSA Report No. 108-CAN-19-002. https://static.nhtsa.gov/odi/ctr/9999/TRTR-646051-2019-001.pdf

four front combination lamps tested (samples LH1 and LH4) failed to comply with certain low beam photometry requirements in S10.15.6.

i. Sample LH1:

- Front combination lamp sample LH1 photometry was measured at twenty-four test points. At two of the twenty-four test points, sample LH1 exceeded the maximum allowable luminous intensity values by small amounts (11.4% and 4.7%). At one of the twenty-four test points, sample LH1 was below the minimum acceptable luminous intensity value by 13.0%.
- At 21 of 24 test points, sample LH1 complied with the specified luminous intensity values listed in Table XIX-a (LB2V).

ii. Sample LH4

- Front combination lamp sample LH4 photometry was measured at 24 test points. At two of the twenty-four test points, the sample LH4 exceeded the maximum allowable luminous intensity values by small amounts (16.8% and 19.4%).
- At 22 of 24 test points, sample LH4 complied with the specified luminous intensity values listed in Table XIX-a (LB2V).

iii. For both samples LH1 and LH4, test points at which the maximum allowable luminous intensity values were exceeded at test points 1.0 degree and 0.5 degrees up from the horizontal, respectively. These test points, which were taken in the range of 1.5 degrees to 9.9 degrees left of center, are in place to ensure that glare is minimized to oncoming drivers. In the UMTRI report entitled "Just Noticeable Differences for Low-Beam Headlamp Intensities" (UMTRl-97-4), testing was conducted to evaluate "just noticeable differences" or JNDs for glare intensities of oncoming low-

beam headlamps. Specifically, UMTRI looked at whether the 25% rule established by NHTSA for signal lamps would be applicable for the range of intensities relevant to low-beam headlamps. Based on the testing conducted by UMTRI using low-beam headlamps, UMTRI concluded that applying the 25% limit for inconsequential noncompliance to a photometric test point that specifies a maximum for glare protection would be appropriate.

Given the UMTRI conclusion, it believes that the small exceedances in maximum intensities for these two test points are inconsequential to safety.

iv. For sample LH1, test point 4.0D 20.0R was the third point which was noncompliant per the measurements taken. This test point measures light intensity down and to the right (4 degrees below the horizontal and 20 degrees to the right of center). The minimum intensity value ensures adequate light down and far right (e.g., sidewalk to the right of the vehicle). Sample LH1's measured light intensity was 13% less than the required value.

Of the four samples tested by Calcoast, only one sample was noncompliant at this test point. This degree of nonconformity was minimal (13% below the required value). When the other three samples were tested, the measured intensities at this test point complied with margins of 47.2%, 27.8% and 2.8%.

For sample LH1, a point within the Zone 10U-90U/90L-90R at 10.00U-7.3R exceeded the maximum permissible intensity threshold by 8.7%. The maximum allowable intensity of 125 candelas in this zone was established to reduce the amount of glare to the driver of the car with the subject headlamp in driving conditions involving poor weather (rain, fog, snow, etc.). The consequence of one of four samples having a measurement of 8.7% above

the maximum allowable value is inconsequential given the exceedance is far less than the 25% just noticeable difference.

As discussed previously in its petition, NASI stated that NHTSA has recognized in the past that it is inherently difficult to manufacture all lamps to comply with all test points and that random failures do occur. FMVSS No. 108 requires lighting equipment to be designed to conform to relevant requirements as opposed to simply comply with relevant requirements. Occasional random noncompliances are to be expected.[10] This is why there has never been an absolute requirement that every motor vehicle lighting device meets every single photometric test point to comply with FMVSS No. 108.[11]

Based on the data before it, NASI stated that it believes that the light intensity measured at test point 4.0D 20.0R for one of four samples tested is inconsequential to safety.

b. NASI claimed that it is not aware of any field or customer complaints related to the low-beam performance of the subject front combination lamps, nor has it been made aware of any accidents or injuries that have occurred relating to the performance of these lamp assemblies.

NASI concluded by reiterating that the subject noncompliance is inconsequential as it relates to motor vehicle safety and that its petition to be exempted from providing notification of the noncompliance, as required by 49 U.S.C. 30118, and a remedy for the noncompliance, as required by 49 U.S.C. 30120, should be granted.

VI. Public Comment:

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[10] *See Nissan Motor Corporation, U.S.A.; Denial of Application for Decision of Inconsequential Noncompliance;* 62 FR 63416, November 28, 1997.

[11] *See Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment;* 83 FR 51766, October 12, 2018.

NHTSA received one comment from the public.[12] The commenter stated a belief that NASI provided substantial evidence in support of its position, while also noting an inability to judge the merits of the petition. While the Agency appreciates the commenter's view on this issue, NHTSA finds that the information submitted by NASI does not satisfy its burden of persuasion as discussed below.

VII. NHTSA's Analysis:

A. General Principles

The burden of establishing the inconsequentiality of a failure to comply with a *performance requirement* in a standard—as opposed to a *labeling requirement with no performance implications*—is more substantial and difficult to meet. Accordingly, the Agency has not found many such noncompliances inconsequential.[13]

An important issue to consider in determining inconsequentiality is the safety risk to individuals who experience the type of event against which the recall would otherwise protect.[14] The Safety Act is preventive, and manufacturers cannot and should not wait for deaths or injuries to occur in their vehicles before they carry out a recall. *See, e.g.*, *United States v. Gen. Motors Corp.*, 565 F.2d 754, 759 (D.C. Cir. 1977). Indeed, the very purpose of a recall is to protect individuals from risk. *See id.* In general, NHTSA does not consider the absence of complaints or injuries to show that the issue is inconsequential to safety. "Most importantly, the absence of a complaint does not mean there have not been any safety issues, nor does it mean that there will not be safety issues in the future."[15] "[T]he fact that in past reported cases good luck and swift

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[12] Docket No. NHTSA-2019-0124-0003

[13] *Cf. Gen. Motors Corporation; Ruling on Petition for Determination of Inconsequential Noncompliance*, 69 FR 19897, 19899 (Apr. 14, 2004) (citing prior cases where noncompliance was expected to be imperceptible, or nearly so, to vehicle occupants or approaching drivers).

[14] *See Gen. Motors, LLC; Grant of Petition for Decision of Inconsequential Noncompliance*, 78 FR 35355 (June 12, 2013) (finding noncompliance had no effect on occupant safety because it had no effect on the proper operation of the occupant classification system and the correct deployment of an air bag); *Osram Sylvania Prods. Inc.; Grant of Petition for Decision of Inconsequential Noncompliance*, 78 FR 46000 (July 30, 2013) (finding occupant using noncompliant light source would not be exposed to significantly greater risk than occupant using similar compliant light source).

[15] *Morgan 3 Wheeler Limited; Denial of Petition for Decision of Inconsequential Noncompliance*, 81 FR 21663, 21666 (Apr. 12, 2016).

reaction have prevented many serious injuries does not mean that good luck will continue to work."[16]

B. NHTSA's Response to NASI's Petition

FMVSS No. 108 establishes the minimum level of performance for lighting and reflective equipment. The petitioner, not NHTSA, has the burden to demonstrate that a noncompliance with the FMVSS is inconsequential to safety. In the past, the Agency has only determined that a noncompliance with photometric requirements to be inconsequential to safety in very limited circumstances, such as when we have determined the brightness differential would not be noticeable to an observer.

NHTSA's analysis will consider each of the two noncompliances.

The first noncompliance to be considered, 49 CFR 571.108, S8.1.11, concerns the reflex reflector. The purpose of the reflex reflectors, among other things, is to provide conspicuity to vehicles that are not in operation at night. There is a safety need to provide ample conspicuity to vehicles in order to reduce the risk of motor vehicle crashes.

NASI claimed the real-world testing it conducted showed that noncompliant and compliant reflex reflectors are equally detectable in real-world conditions. NHTSA disagrees. In this case, NASI's testing did not have human participants but instead a camera was used to check visibility of a reflex reflector. NHTSA reviewed the submitted study, and determined that there is a clear difference between the compliant and non-compliant reflex reflector. Further, NHTSA's test data along with NASI's in-house failed sample confirms the failures are comparable to each other. In addition, the position of the surrogate vehicle was for only one position and was directly in front of the stimulus vehicle.

NASI claimed that a nonconformity at a given test point for a reflex reflector will generally have a minimal impact on detectability and therefore concluded that minor

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[16] *United States v. Gen. Motors Corp.*, 565 F.2d 754, 759 (D.C. Cir. 1977) (finding defect poses an unreasonable risk when it "results in hazards as potentially dangerous as sudden engine fire, and where there is no dispute that at least some such hazards, in this case fires, can definitely be expected to occur in the future").

nonconformances at any one test point should be inconsequential with respect to safety risk. NHTSA disagrees, especially considering that 3 of the 5 required test points were not met. Even if light reflecting at a particular test point will be observed for only a short period of time, since there is a drop in performance over several observable angles, we believe that the detectability of this reflex reflector may be impacted when compared to a compliant reflex reflector. Therefore, we do not agree with NASI's conclusion.

We do not agree that the study referenced by NASI (DOT HS 808 209) adequately supports any conclusion that a 25% deviation from the photometric requirement for a reflex reflector is inconsequential. First, this study does not apply to reflex reflectors. Second, the performance requirements for reflex reflectors are measured in (cd/incident ft-c) or (mcd/lux), whereas the performance requirements for signal lighting assessed in the study are measured in candela (cd). Absent compelling evidence, which NASI has not supplied, the Agency does not believe there is any basis for applying the conclusions of a study limited to one type of lighting equipment and criteria to another form of equipment evaluated by different criteria.

NASI also cites two past petition grants predating DOT HS 808 209; one for Subaru[17] and one for General Motors,[18] where NHTSA concurred with the proposition that a 25% deviation in reflector performance is imperceptible. Since evaluating Subaru's petition almost thirty years ago, NHTSA's line of reasoning on this subject has evolved. In the previous Subaru petition, NHTSA applied rationale related to tail lamps to reflex reflectors. Today, as explained previously in this section, NHTSA recognizes that the photometry criteria evaluated for reflex reflectors is measured in (cd/incident ft-c) or (mcd/lux) whereas tail lamps are measured in candela (cd) and therefore it is not proper to apply the logic of the tail lamp analysis to reflex reflectors, despite the prior grant.[19]

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[17] *See Subaru of America; Grant of Petition for Determination of Inconsequential Noncompliance;* 56 FR 59971, November 26, 1991.

[18] *See General Motors Corporation; Grant of Petition for Determination of Inconsequential Noncompliance;* 57 FR 45866, October 5, 1992.

[19] NHTSA acknowledges that a petition for failure to meet reflex reflector (luminosity) was granted as recently as

Further, NHTSA does not find the decision issued in the General Motors petition as particularly applicable or persuasive. In that instance, General Motors determined that a noncompliance existed because the installation of an accessory front end cover available at its dealerships masked an existing compliant side marker to the extent that the vehicle with the cover installed did not meet Standard No. 108. Among other things, NHTSA's notice granting GM's petition observed that the Agency would not necessarily have considered the condition caused by the installation of the front-end cover as a non-compliance.

The second noncompliance pertains to the lower beam not meeting the photometric requirements of FMVSS No. 108, S10.15.6. The purpose of the lower beam, among other things, is to provide down-road illumination while not causing glare to other road users. There is an obvious safety need to minimize glare in order to reduce the risk of motor vehicle crashes.

NHTSA does not concur with the conclusion NASI drew from an UMTRI study[20] that exceeding maximum intensities is inconsequential to safety because NHTSA has no glare-specific study indicating that the level of "glare" involved here is safe and NASI's petition does not provide any other data establishing that the headlamp noncompliance here has no impact on safety. Furthermore, OVSC reviewed the compliance test data for the samples NHTSA tested and observed that all four samples showed the lower beam to consistently and significantly exceed the maximum photometric requirement at similar test points, prior to a 0.25-degree re-aim allowed by S14.2.5.5 of FMVSS No. 108 for headlamp photometric measurement of all headlamps except a Type F upper beam unit not equipped with a vehicle headlamp aiming device (VHAD). The 0.25-degree re-aim procedure affords manufacturers flexibility in meeting the photometric requirements to allow for variations in readings between laboratories. Given this

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2020; however, the facts of that petition are substantially different in that the actual measured noncompliance was marginal (one test point having a value .05% below the requirement) and the bulk of rationale was based on a theoretical worst case analysis. *See Toyota Motor North America, Inc., Grant of Petition for Decision of Inconsequential Noncompliance;* 85 FR 39679, July 1, 2020.

[20] *See Just Noticeable Differences for Low-Beam Headlamp Intensities* (Sayer, Flannagan, Sivak, Kojima, and Flannagan), Report No. UMTRI-97-4, February 1997.

flexibility is already incorporated into the procedure, NHTSA does not agree that failure to meet the requirements after the re-aim is inconsequential to safety.

With respect to the "design to conform" argument that NASI applied to both the lower beam and the reflex reflector, NASI claimed that "occasional random noncompliances are to be expected" and that the "designed to conform" provision contained in the lighting standard indicates that the Agency does not demand a higher standard of compliance beyond the manufacturer's design intent. NASI cited commentary from NHTSA's NPRM related to amending FMVSS No. 108 to permit the certification of adaptive driving beam (ADB) headlighting systems. However, NHTSA's Final Rule on ADB noted that the "designed to conform" language was a product of the technology available back in 1967, and that NHTSA may not come to the same conclusion if it were to revisit the issue today, in light of the fact that lighting equipment design, technology, and manufacturing have evolved and advanced since the late 1960's.[21]

Additionally, NHTSA also finds that, without consideration of the claim that items that must meet FMVSS No. 108 need only be designed to conform, that design intent is immaterial to the disposition of this petition. NASI's Part 573 filing states that the side reflex reflector production molds were damaged, and the lower beam reflector mold was worn and both conditions caused product performance issues. Therefore, whatever NASI's design intent may have been, the failure to conform in the instant case apparently stems from a systemic production problem that is wholly distinct from whether the components were "designed to conform."

NHTSA has consistently held that a lamp's failure to meet performance requirements will not constitute a compliance failure when such failures are random and occasional.[22] However, the test failures for two of the four lower beam functions that NHTSA tested, and four of the four

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[21] *Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices, and Associated Equipment, Adaptive Driving Beam Headlamps*, 87 FR 9916, 9940 n.92 February 22, 2022.

[22] *See Nissan Motor Corporation, U.S.A.; Denial of Application for Decision of Inconsequential Noncompliance;* 62 FR 63416, November 28, 1997.

side reflex reflectors that NHTSA tested occurred at around the same test points and photometric values. All of these failures were found to be within 1% to 10% of each other. These data support a pattern of performance that is neither random nor occasional. Based on the pattern of failure established with four samples tested, NHTSA finds that if more lamps were tested, more than an occasional number of failures would be obtained.

VIII. NHTSA's Decision:

In consideration of the foregoing, NHTSA has decided that NASI has not met its burden of persuasion that the subject FMVSS No. 108 noncompliance is inconsequential to motor vehicle safety. Accordingly, NASI's petition is hereby denied and NASI is consequently obligated to provide notification of and free remedy for that noncompliance under 49 U.S.C. 30118 and 30120.

(Authority: 49 U.S.C. 30118, 30120: delegations of authority at 49 CFR 1.95 and 501.8)

Anne L. Collins,

Associate Administrator for Enforcement.

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